

- 2 -

Application No. 09/960,575
Docket No. 740819-651A1
Cont.

in the contact holes with respect to the total sum of the widths of the lead conductive films on the boundary line between the active region and the isolating region is a certain value or less.

Please amend Page 16, second paragraph as follows:

A2

Figure 1 is a graph showing the relationship between the ratio (S/L) of the total sum (S) of the exposed areas of an electrode pad in contact holes to the total sum (L) of the widths (w) of lead conductive films on a boundary line between an active region and an isolating region and the breakdown ratio of the capacitance insulating film.

Please amend Page 18, the paragraph which extends to page 19 as follows:

A3

Figure 1 is a graph plotted with the breakdown ratio of the capacitance insulating film 118 with respect to the ratio (S/L) of the total sum (S) of the exposed areas of the electrode pad 124 in contact holes 128 to the total sum (L) of the widths (w) of the lead conductive films 122 on the boundary line between the active region 116 and the isolating region 114. Herein, increasing or decreasing the S/L was performed by setting L as a constant (8 μm) and increasing or decreasing S. Increasing or decreasing S was performed in the following two ways: The diameter of the contact hole 128 is set to be a conventional value (0.28 μm) and the number of the contact holes 128 is increased or decreased; and the diameter of the contact hole 128 is set to be smaller (0.18 μm) than the conventional value and the number of the contact holes 128 is increased or decreased. The measurement conduction shown in Table 1 are those in the case where the diameter of the contact hole 128 is set to be a conventional value (0.28 μm) and the number of the contact holes 128 is increased or decreased. The results indicate that when the value of S/L is 4 or less, the breakdown ratio of the capacitance insulating film 118 is substantially zero, as shown in Figure 1. Embodiments 1 to 3 below were performed based on these results.

Please amend page 20, first paragraph as follows:

- 3 -

Application No. 09/960,575
Docket No. 740819-651

A4 In the semiconductor device 10 of this embodiment, based on the results of Figure 1, the value of S/L is adjusted to 4 or less by reducing the number of the contact holes 28 (a diameter of $0.28\ \mu\text{m}$). Thus, the ratio (S/L) of the total sum (S) of the exposed areas of the electrode pad 24 in the contact holes 28 with respect to the total sum (which is equal to the total sum of the widths of the lead conductive films 22 in this embodiment: L) of the widths (w) of the lead conductive films 22 on the boundary line between the active region and the isolating region 14 is reduced. As a result, the breakdown ratio of the capacitance insulating film 18 can be substantially zero by adjusting the value of S/L to 4 or less, as shown in Figure 1.

Please amend page 21, last paragraph which ends on page 22:

A5 In this embodiment, the capacitance insulating film 18 formed of a silicon oxynitride film was used, but the capacitance insulating film 18 can be formed of a silicon oxide film, a silicon nitride film or other high dielectric constant films. However, the capacitor insulating films 18 formed of these material shave a different breakdown voltage from that of a silicon oxide film, so that the value of S/L that allows the breakdown ratio of the capacitance insulating film 18 to be substantially zero can be varied depending on the material of the capacitance insulating film 18. However, the value of S/L is still important, regardless of the material used. Therefore, the value of S/L that allows the breakdown ratio to be substantially zero or small enough so that there is no practical problem is determined, and based on the results, the widths (w) of the lead conductive films 22 on the boundary line between the active region 16 and the isolating region 14 and the diameter and the number of the contact holes 28 can be adjusted.

Please amend page 22, last paragraph which ends on page 23:

A6 In this embodiment, based on the results of Figure 1, the diameter of the contact hole 28 is smaller than that of the conventional semiconductor device. Thus, in the semiconductor device 20 of this embodiment, the ratio (S/L) of the total sum (S) of the exposed areas of the electrode pad 24 in the contact hole 28 with respect to the total sum (L) of the widths (w) of the lead conductive films 22 on the boundary line between the active region 16 and the isolating

- 4 -

Application No. 09/960,575
Docket No. 740819-651

region 14 is set to 4 or less. As a result, the breakdown ratio of the capacitance insulating film 18 can be substantially zero, as shown in Figure 1.

Please amend page 24, first paragraph as follows:

A7 Furthermore, in this embodiment, the capacitance insulating film 18 formed of a silicon oxynitride film was used, as in Embodiment 1. However, the capacitance insulating film 18 can be formed of a silicon oxide film a silicon nitride film or other high dielectric constant films. Furthermore, the value of S/L that allows the breakdown ratio of the capacitance insulating film 18 to be substantially zero can be varied depending on the material of the capacitance insulating film 18. However, the value of S/L is still important, regardless of the material used. Therefore, the value of S/L that allows the breakdown ratio to be substantially zero or small enough so that there is no practical problem is determined, and based on the results, the widths (w) of the lead conductive films 22 on the boundary line between the active region 16 and the isolating region 14 and the diameter and the number of the contact holes 28, can be adjusted.

Please amend page 25, second paragraph as follows:

A8 In Embodiments 1 and 2, the total sum (L) of the widths (w) of the lead conductive films 22 on the boundary line between the active region 16 and the isolating region 14 is 8 μm , and it is preferable that L is 8 μm or more because the electric field in the boundary portion Rcr can be relaxed. The number of the contact holes 28 is 158 in Embodiment 1 and 260 in Embodiment 2, and it is preferable that the number of the contact holes 28 is not more than 522. The exposed area of the electrode pad 24 in the contact holes 28 is 9.7 μm^2 in Embodiment 1 and 16 μm^2 in Embodiment 2, and it is preferable that the exposed area is not more than 32 μm^2 because the amount of charges accumulated in the electrode pad can be reduced.

Please amend page 27 as follows: